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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,127	05/03/2001	Chih-Peng Li	21994/206863	6536

32361 7590 08/26/2004

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EXAMINER	
SWEARINGEN, JEFFREY R	
ART UNIT	**PAPER NUMBER**
2143	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,127	LI, CHIH-PENG	
	Examiner	Art Unit	
	Jeffrey R. Swearingen	2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ ~~Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)~~ Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 3 May 2001 fails to comply with 37 CFR 1.98(a)(1), which requires a list of all patents, publications, or other information submitted for consideration by the Office. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Pertaining to claim 16, the "value of approximately between 2.3922" is undefined and therefore confusing.

Pertaining to claim 20, the "value of approximately between 2 and 3" is undefined and therefore confusing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (U.S. Patent No. 6,285,662) and Gummalla et al (U.S. Patent No. 6,614,799).

Watanabe discloses calculating a first back-off window based at least in part on an estimate of a number of users on the network [[Watanabe, column 8, lines 17-24], where random access channel is defined to be the radio link between the mobile terminal and the access point [Watanabe, column 6 line 65 – column 7 line 1]. Each mobile terminal is considered a user, so the number of random access channels will indicate the number of users present in the system.];

sending the first back-off window to a plurality of users of the network [Watanabe, column 8, lines 1-4], and

sending the second back-off window to one or more of the plurality of users of the network [Watanabe, column 8, lines 1-4], as shown in claim 1.

Watanabe fails to disclose calculating a second back-off window based at least in part on a number of collisions that occur within the first back-off window as shown in claim 1, or retransmitting the second back-off window as shown in claim 2.

Gummalla discloses adjusting back-off parameters based on collisions that occur in previous back-off windows, or calculating a second back-off window based at least in part on a number of collisions that occur within the first back-off window. [column 8, lines 32-46.] Gummalla further discloses sending the subsequent back-off windows to one or more of the plurality of users of the network. [Gummalla, column 8, lines 45-47]

Motivation exists to alter the back-off window size so it will function better in different load scenarios after initially sizing a back-off window. [Gummalla, column 7, lines 42-43]

It is obvious to one of ordinary skill in the art to calculate initial back-off windows based on an estimate of users present and future back-off windows based on the number of collisions in previous back-off windows.

Pertaining to claims 8 and 9, Watanabe and Gummalla do not specifically teach changing the size of the back-off window by scaling the number of collisions. However, Gummalla provides the equivalent functionality by basing the second window on a scalar number of collisions [Gummalla, column 8, lines 32-46]. Claim 9 refers to the number 2.3922, which Applicant's specification states is the average number of users in a collision.

Motivation exists to alter the back-off window size so it will function better in different load scenarios after initially sizing a back-off window. [Gummalla, column 7, lines 42-43]

It would be obvious to one of ordinary skill in the art to change the size of the back-off window by a scalar amount because Gummalla provides equivalent functionality.

Claims 3-7, 10-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (U.S. Patent No. 6,285,662 and Gummalla et al (U.S. Patent No. 6,614,799), and further in view of Chiu et al. (U.S. Patent No. 5,734,833)

Pertaining to claim 3, Watanabe and Gummalla are applied to claim 1 as previously shown. Watanabe and Gummalla fail to disclose the usage of a cycle for claim 3.

Chiu discloses a cycle with a limited number of users that can compete for network resources during the cycle [Chiu, column 5, lines 4-6, where subsets of users are a limited number of users and cycles operate based on the SCS scheduler [column 4, line 65] where cycles are initiated based on the start time for requested reserved slots [column 4, lines 66-67]], as claimed in claim 3.

Motivation exists for limiting users with a cycle so that multiple messages do not get garbled in transmission because of collisions [Chiu, column 2, lines 16-21].

It is obvious to one of ordinary skill in the art to use cycles of limited numbers of users in order to reduce collisions with a dynamically sized backoff window taught by Watanabe and Gummalla.

Pertaining to claim 4, Watanabe and Gummalla are applied with Chiu as in claim 3. Watanabe and Gummalla fail to disclose calculating the second back-off window in the same cycle as the step of calculating the first back-off window..

Claim 4 claims the method of claim 3, wherein calculating the second back-off window comprises calculating the second back-off window in the same cycle as the step of calculating the first back-off window, as disclosed by Chiu [Figure 8 shows the calculation of changes to the "present state of traversal in the collision resolution tree", which occurs during each subset of users during collision resolution. This shows that a future subset size and its state are calculated during a previous cycle. This is

considered calculating a second (or future) back-off window in the same cycle as the step of calculating the first (or current) back-off window.].

Motivation exists to calculate a second back-off window in the same cycle as the first back-off window in order to inform the stations that will transmit in the next back-off window of the back-off window size before the new back-off window begins.

It is obvious to one of ordinary skill in the art to calculate the second back-off window of the cycle during the first back-off window.

Pertaining to claim 5, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 3. Watanabe and Gummalla fail to disclose ending the cycle when no collisions are present.

Chiu discloses ending the cycle when there are no collisions present [column 5, lines 6-7], as noted in claim 5.

Motivation exists to end a collision resolution cycle and method when no collisions are present because the collision resolution method is not necessary if no collisions are present.

It is obvious to one of ordinary skill in the art to end the collision resolution cycle when no collisions are present.

Pertaining to claim 6, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 3. Watanabe and Gummalla fail to disclose initiating a second cycle subsequent to the first cycle with a limited number of users that can compete for network resources during the second cycle.

Chiu discloses initiating a second cycle subsequent to the first cycle with a limited number of users [subset of the client stations, column 5, lines 5-6] that can compete for network resources during the second cycle [the subset is "recursively applied to smaller and smaller subsets, column 5, lines 6-7].

Motivation exists to have a second cycle immediately after the first cycle to further resolve any smaller collisions that may have occurred in the first cycle of collision resolution.

It is obvious to one of ordinary skill in the art to have a second cycle immediately follow the first cycle in a collision resolution method in order to continue resolving smaller collisions left over from a larger collision resolution.

Pertaining to claim 7, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 3. Watanabe and Gummalla fail to disclose initiating a cycle with a limited number of users that successfully reserved network resources during a prior cycle.

Chiu discloses initiating a cycle with a limited number of users, which comprises initiating a cycle based on a number of users that successfully reserved network resources during a prior cycle [column 5, lines 6-7 disclose recursively applying limited access to smaller and smaller subsets of client stations. A smaller subset of these client stations would be a subset of client stations who were involved in a previous collision, which is the number of users attempting to access the cycle minus the number of users who transmitted successfully in the previous cycle].

Motivation exists to limit the number of users in a collision resolution cycle to those users who did not have collisions in the previous cycle, as they would not need to be part of a collision being resolved.

It is obvious to one of ordinary skill in the art to limit the number of users in a new collision resolution cycle as part of a collision resolution method to the users that were involved in previous unresolved collisions.

Pertaining to claim 10, Watanabe teaches a data collision resolution method including sending a first back-off window to a plurality of users of the network [Watanabe, column 8, lines 1-4]; and sending the second back-off window to one or more of the plurality of users of the network [Watanabe, column 8, lines 1-4]. Watanabe fails to teach calculating a second back-off window based at least in part on a number of users that collided while attempting to reserve network resources during the first back-off window and limiting network reservation attempts in the second back-off window to users that collided while attempting to reserve network resources during the first back-off window.

Gummalla teaches calculating a second back-off window based at least in part on a number of users that collided while attempting to reserve network resources during the first back-off window [Gummalla, column 8, lines 32-46]. Gummalla further fails to disclose limiting network reservation attempts in the second back-off window to users that collided while attempting to reserve network resources during the first back-off window.

Chiu discloses limiting network reservation attempts in the second back-off window to users that collided while attempting to reserve network resources during the first back-off window [column 5, lines 6-7 disclose recursively applying limited access to smaller and smaller subsets of client stations. A smaller subset of these client stations would be a subset of client stations that were involved in a previous collision, which is the number of users attempting to access the cycle minus the number of users who transmitted successfully in the previous cycle].

Motivation exists to have a data collision resolution method that adapts to the number of users involved in a previous collision.

It is obvious to one of ordinary skill in the art to combine Watanabe and Gummalla and Chiu to make an adaptable data collision resolution method.

Pertaining to claim 11, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 3. Watanabe and Chiu fail to disclose calculating subsequent back-off windows based on a number of users that collided in a prior back-off window and sending the subsequent back-off windows to one or more of the plurality of users of the network.

Gummalla discloses calculating subsequent back-off windows based on a number of users that collided in a prior back-off window and sending the subsequent back-off windows to one or more of the plurality of users of the network. [Gummalla, column 8, lines 32-46]

Motivation exists to alter the back-off window size so it will function better in different load scenarios after initially sizing a back-off window. [Gummalla, column 7,

lines 42-43] Motivation further exists to inform users of the network who need to take part in a future back-off window for collision resolution of the size of the future back-off window before the user transmissions begin.

It is obvious to one of ordinary skill in the art to calculate future back-off windows in a data collision resolution method based on the number of users that collided in a previous back-off window.

Pertaining to claim 12, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 11. Watanabe and Gummalla fail to disclose limiting network reservation attempts in the subsequent back-off windows to the users that collided while attempting to reserve network resources during a prior back-off window.

Chiu discloses initiating a cycle with a limited number of users, which comprises initiating a cycle based on a number of users that successfully reserved network resources during a prior cycle [column 5, lines 6-7 disclose recursively applying limited access to smaller and smaller subsets of client stations. A smaller subset of these client stations would be a subset of client stations who were involved in a previous collision, which is the number of users attempting to access the cycle minus the number of users who transmitted successfully in the previous cycle].

Motivation exists to limit the number of users in a collision resolution cycle to those users who did not have collisions in the previous cycle, as they would not need to be part of a collision being resolved.

It is obvious to one of ordinary skill in the art to limit the number of users in a new collision resolution cycle as part of a collision resolution method to the users that were involved in previous unresolved collisions.

Pertaining to claim 13, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 11. Watanabe and Gummalla fail to disclose initiating a first cycle with a limited number of users that can compete for network resources during the cycle.

Chiu discloses a cycle with a limited number of users that can compete for network resources during the cycle [Chiu, column 5, lines 4-6, where subsets of users are a limited number of users and cycles operate based on the SCS scheduler [column 4, line 65] where cycles are initiated based on the start time for requested reserved slots [column 4, lines 66-67]], as claimed in claim 3.

Motivation exists for limiting users with a cycle so that multiple messages do not get garbled in transmission because of collisions [Chiu, column 2, lines 16-21].

It is obvious to one of ordinary skill in the art to use cycles of limited numbers of users in order to reduce collisions with a data collision resolution method taught by Watanabe and Gummalla.

Pertaining to claim 14, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 13. Watanabe and Gummalla fail to disclose initiating a second cycle when no collisions occurred during a back-off window in the first cycle.

Chiu discloses ending a cycle when there are no collisions present [column 5, lines 6-7]. Chiu further discloses the signal conversion system that determines the parameters of the requested contention slots and reserved slots [column 8, lines 36-37]. A contention slot and subsequent reserved slots for collision resolution are considered a cycle.

Motivation exists to end a collision resolution cycle and method when no collisions are present because the collision resolution method is not necessary if no collisions are present.

It is obvious to one of ordinary skill in the art to end a collision resolution cycle in a collision resolution method when no collisions are present and start it again to allow for contention and collision with a new cycle.

Pertaining to claim 15, Watanabe, Gummalla and Chiu do not specifically teach changing the size of the back-off window by scaling the number of collisions. However, Gummalla provides the equivalent functionality by basing the second window on a scalar number of collisions [Gummalla, column 8, lines 32-46].

Motivation exists to alter the back-off window size so it will function better in different load scenarios after initially sizing a back-off window. [Gummalla, column 7, lines 42-43]

It would be obvious to one of ordinary skill in the art to change the size of the back-off window by a scalar amount because Gummalla provides equivalent functionality.

Pertaining to claim 17, Watanabe teaches a data collision resolution system including a plurality of remote devices [[Watanabe, column 6 lines 43-44], where mobile terminals are considered remote devices]; and

an access point in communication with the plurality of remote devices [Watanabe, column 6, line 45], wherein the access point further comprises:

a switch for communicating with the plurality of remote devices [Watanabe, column 6, lines 44-45];

a transceiver for sending information to and receiving information from the plurality of remote devices [Watanabe, column 6, lines 51-55]; and

a collision resolution device communicably coupled to the transceiver and the switch, wherein the collision resolution device sends an initial back-off window to the plurality of remote devices; [Watanabe, column 7 line 57 – column 8 line 4]

Watanabe fails to teach wherein the collision resolution device calculates and sends a subsequent back-off window in response to a number of collisions in the initial back-off window and wherein the collision resolution device limits the remote devices that can compete for network resources in the subsequent back-off window to remote devices that unsuccessfully attempted to reserve network resources in the initial back-off window.

Gummalla teaches calculating a second back-off window based at least in part on a number of users that collided while attempting to reserve network resources during the first back-off window [Gummalla, column 8, lines 32-46]. Gummalla further fails to disclose limiting network reservation attempts in the second back-off window to users

that collided while attempting to reserve network resources during the first back-off window.

Chiu discloses limiting network reservation attempts in the second back-off window to users that collided while attempting to reserve network resources during the first back-off window [column 5, lines 6-7 disclose recursively applying limited access to smaller and smaller subsets of client stations. A smaller subset of these client stations would be a subset of client stations that were involved in a previous collision, which is the number of users attempting to access the cycle minus the number of users who transmitted successfully in the previous cycle].

Motivation exists to have a data collision resolution system that adapts to the number of users involved in a previous collision.

It is obvious to one of ordinary skill in the art to combine Watanabe and Gummalla and Chiu to make an adaptable data collision resolution system.

Pertaining to claim 18, Watanabe and Gummalla teach a data collision resolution method with Chiu as applied to claim 17. Chiu and Gummalla fail to disclose wherein the size of the initial back-off window is based on an estimate of remote devices competing for network resources

Watanabe discloses that the size of the initial back-off window is based on an estimate of remote devices competing for network resources. [[Watanabe, column 8, lines 17-24], where random access channel is defined to be the radio link between the mobile terminal and the access point [Watanabe, column 6 line 65 – column 7 line 1].

Each mobile terminal is considered a user, so the number of random access channels will indicate the number of users present in the system.]

Motivation exists to set the size of the initial back-off window so it will function better in different load scenarios after initially detecting the number of users present. [Gummalla, column 7, lines 41-46]

It is obvious to one of ordinary skill in the art to set the initial back-off window in the data collision resolution system appropriately for the number of users present in the system.

Pertaining to claim 19, Watanabe, Gummalla and Chiu do not specifically teach changing the size of the back-off window by scaling the number of collisions. However, Gummalla provides the equivalent functionality by basing the second window on a scalar number of collisions [Gummalla, column 8, lines 32-46]. Motivation exists to alter the back-off window size so it will function better in different load scenarios after initially sizing a back-off window. [Gummalla, column 7, lines 42-43]

It would be obvious to one of ordinary skill in the art to change the size of the back-off window by a scalar amount because Gummalla provides equivalent functionality.

Double Patenting

Claims 1, 3, 7 of this application conflict with claim 1 of Application No. 09/652,153. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one

application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is 703-305-0449. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeffrey R. Swearingen
Examiner
Art Unit 2143

JRS

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